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1		1.	method	of	detec	ting	an	open	cir	cuit
2	condition	in an	electric	cal s	ystem	for	powe:	r supp	oly	from
3	a central	genera	tor and	dist	ribute	d por	wer g	enera	tor	to a
4	load, the	method	d compris	sing:						

injecting a signal into the system;

determining a system impedance in response to the injected signal;

8 comparing the determined system impedance with 9 a predetermined threshold; and

identifying an occurrence of an open circuit or abnormal condition based on the comparison.

- 2. The method of claim 1, wherein the signal is injected on one phase of the supplied power.
- 1 3. The method of claim 1, wherein the signal is injected on multiple phases of the supplied power.
- 1 4. The method of claim 2 wherein the signal is injected on each phase of the supplied power with a different phase angle for each phase.
- 5. The method of claim 1 wherein injecting a signal comprises injecting a fundamental power-frequency voltage to produce a real power flow.
- 1 6. The method of claim 5 wherein the injected 2 signal comprises harmonics of the fundamental power-3 frequency.
- 7. The method of claim 1, wherein the injected signal comprises harmonics not harmonically

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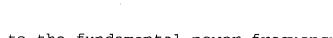
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- 3 related to the fundamental power frequency.
- 8. The method of claim 1 wherein injecting a signal comprises injecting a fundamental power-frequency voltage to produce a reactive power flow.
- 9. The method of claim 1 wherein comparing the determined impedance comprises comparing an impedance magnitude with a threshold value.
- 1 10. The method of claim 1 wherein comparing 2 the determined impedance comprises comparing an impedance 3 angle with a threshold value.
- 1 11. The method of claim 1 wherein the signal 2 is intermittently injected.
 - 12. The method of claim 1 wherein the signal is injected at a point relative to a signal waveform to minimize interference, distortion, or saturation.
 - 13. A system for detecting an open circuit condition in an electrical power supply system comprising:
 - a central power generator arranged to generate
 electrical power;
 - at least one distributed power generator arranged to operate as a local source of electrical power for a localized load;
- a feeder network coupled to the central power
 generator and the at least one distributed power
 generator for providing electrical power to the at least
 one distributed power generator;
- a signal injector connected to the power supply

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14	system	and	arranged	to	inject	a	signal	at	each	phase	of
15	the gen	erat	ed power;								

an impedance calculator connected to the power supply system and arranged to determine the system impedance resulting from the injected signal;

- a comparator arranged to compare the determined system impedance with a predetermined threshold; and
- a controller arranged to identify the occurrence of an islanding condition based on the comparison made by the comparator.
 - 14. The system of claim 13 wherein the signal injector is arranged to inject a signal comprising a fundamental power-frequency voltage to produce a real power flow.
 - 15. The system of claim 13 wherein the signal injector is arranged to inject the signal with different phase angles for each phase of the generated power.
 - 16. The system of claim 13 wherein the signal injector is arranged to inject a signal comprising a fundamental power-frequency voltage to produce a reactive power flow.
- 1 17. The system of claim 13 wherein the comparator is arranged to compare the calculated impedance magnitude with a threshold value.
- 18. The system of claim 13 wherein the comparator is arranged to compare the calculated impedance angle with a threshold value.
- 1 19. The system of claim 13 wherein the

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- controller is responsive to the comparator to disconnect the at least one distributed power generator from the feeder network if the comparison is indicative of an
- 5 impedance greater than the threshold.